

New and Little Known Tenebrionidae from Central America and Mexico, with Remarks on their Classification (Coleoptera)

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Abstract.—The tribe Misolampini is restricted to the Old World. New World species are transferred to Coelometopini. Details are presented of morphological similarities between *Hegemona* and *Saziches* (Neotropical) and *Promorphostenophanes* (Oriental). New genera described: *Cnephalura*, *Bothynocephalus*; new species: *Cnephalura umbrata*; *Bothynocephalus cristatus*; *Isaminas breedlovei*, *I. reticuloides*, *I. sullivanii*; *Saziches giesberti*. New synonymy: *Pteroglymmius erotyloides* Gebien = *Isaminas erotyloides* (Gebien).

The taxa treated here comprise a group of flightless, arboreal Tenebrionidae restricted to Central and South America. The genera *Saziches* and *Isaminas* were described by Champion (1886), who placed them, along with *Oxidates* and *Hegemona*, in Misolampini. As discussed by Doyen et al (in press), Misolampini presently construed consists of various geographically restricted groups of flightless Coelometopini. The South and Central American taxa may form a valid clade, but with few exceptions do not show close relationships to the Misolampini of Africa or tropical Asia. For this reason, Misolampini should properly be applied only to *Misolampus* and its relatives, if at all. The new world genera are more conveniently considered as members of Coelometopini. Reconstitution of New World Coelometopini will be considered at greater length by Doyen (in prep.). The purpose of the present contribution is to describe several new genera and species which significantly broaden the range of variation of the New World fauna of these beetles.

Isaminas Champion

Isaminas Champion 1886: 266.

Pteroglymmius Gebien 1928: 223.

Type species: *Isaminas gibbipennis* Champion, Gebien (1942–44) designation.

Champion (1886) described the salient external features of this genus. It may be added that the antennae bear compound sensoriae on the apical five antennal segments and that the internal female reproductive tract and glands are typical of Coelometopini. The female tract consists of the vagina, without a bursa copulatrix, and a single, long diverticulum, glandular except on the abruptly enlarged, apical spermatheca. The first lobe of the coxite of the ovipositor is very elongate, comprising about $3/4$ of the length of the ovipositor tube. The gland reservoirs are

large and annulate, with the secretory tissue draining through a pair of enlarged ampullae at the exit ducts. All of these features show that *Isaminas* is derived from a relatively apotypic group of Coelometopini. In the New World, this group includes most of the tribe, with the exception of the genera *Camaria* and its relatives, *Taphrosoma*, *Mylaris* (= *Nyctobates*; Spilman, 1973), and *Hapsida* which are plesiomorphic in one or more features (Tschinkel and Doyen, 1980). *Isaminas* is very similar to *Oxidates* Champion, differing in the configuration of the metasternum. In *Isaminas* the mesocoxal and metacoxal cavities are nearly contiguous, with the intervening strip of metasternum narrower than the metepipleuron. In *Oxidates* the strip of intervening metasternum is much wider than the metepipleuron. *Isaminas* is superficially similar to *Saziches* Champion, but in the latter the elytral punctures of each series are connected by a fine, longitudinal furrow. In *Isaminas* the punctures are isolated. There are major internal differences between these two as well, discussed under *Saziches*.

I have not examined the type of *Pteroglymmius* Gebien (1928), but his detailed description of the peculiar elytral sculpturing clearly identifies his species *erotyloides* as synonymous with specimens at hand. Gebien separated *Pteroglymmius* from *Isaminas* on the basis of the scutellum (punctiform in *Pteroglymmius*; distinct in *Isaminas*). In the material examined, including cotypes of *I. gibbipennis* Champion and *brevicollis* Champion, the scutellum is punctiform, scarcely entering the elytral disk. In all other features *erotyloides* is extremely similar to other species of *Isaminas*.

Key to the Species of *Isaminas*

1. Elytron with distinct epipleural carina; epipleuron continuing to apex of elytra or nearly so 2
 - Elytron with epipleural carina visible only from humerus to metacoxa, obsolete posteriorly *brevicollis* Champion
- 2(1). Elytra with more or less uniform series of punctures; sequential punctures in series sometimes contiguous or coalesced, but punctures in adjacent series never coalesced 3
 - Elytra with punctures in adjacent series coalesced to form transverse furrows behind humeri and sometimes centrally or on declivity 5
- 3(2). Pronotum broadest before middle; lateral margins shallowly crenulate, nearly straight in posterior half *gibbipennis* Champion
 - Pronotum broadest behind middle; lateral margins evenly arcuate 4
- 4(3). Elytra with punctures relatively small, separated by much more than puncture diameter both longitudinally and transversely, except on declivity *breedlovei*, new species
 - Elytra with punctures relatively large, subcontiguous; adjacent punctures in series sometimes coalesced, forming elongate foveae *reticuloides*, new species
- 5(2). Each elytron with punctures in series four through eight coalesced just behind humerus and four through seven on declivity, forming depressed areas covered with bright yellow secretion in life; punctation otherwise uniform *sullivani*, new species
 - Each elytron with irregular transverse depressed bands about one third and two thirds posterad, uniting punctures in rows two or three to eight;

pairs or triplets of adjacent punctures irregularly coalesced over remainder of surface, especially on declivity *erotyloides* Gebien

Isaminas breedlovei, NEW SPECIES

(Fig. 1)

Frons and vertex with exceedingly shallow punctures about half eye facet in diameter, separated by one to several puncture diameters; punctures slightly coarser, deeper, and denser on genae and epistomum, finer and denser along rim. Pronotal disk sculptured like frons centrally, becoming more shallowly and finely punctate laterally; with very shallow, median longitudinal depression and distinct fovea slightly behind middle at medial third on each side. Anterior angles obtuse, angulate but rounded at apex; lateral margins more strongly arcuate in anterior third, weakly so to base, sometimes very weakly undulate in basal third. Prosternal process with longitudinal, parallel depressions along lateral quarters, becoming deeper posteriorly, producing trilobed apex. Elytra with strial punctures four to eight times eye facet in diameter, separated longitudinally by one to three puncture diameters; striae separated by two to four puncture diameters; sutural stria with finest punctures, becoming gradually coarser laterally and elongate in striae seven through nine, with punctures three to four times longer than wide in epipleural stria; epipleural carina complete to anterior margin of sternite five, continuing as rounded prominence to apex.

Measurements: median pronotal length (PL), 2.5–2.7 mm; greatest pronotal width (PW), 3.9–4.4 mm; elytral length (EL), 6.7–7.6 mm; greatest elytral width (EW), 6.2–7.1 mm.

Isaminas breedlovei is similar to *reticuloides*, new species, in thoracic shape, configuration of prosternal process and in the extremely gibbous elytra, which are abruptly elevated behind the prothorax as steeply as on the declivity. In *breedlovei* the elytral punctures are separated by at least twice their diameter. In *reticuloides* the punctures are subcontiguous.

Holotype female (California Academy of Sciences) from Mexico, Chiapas, 32 km N Ocozocoautla, on rd. to Malpaso, 762 m, 6-X-1974, D. E. and J. A. Breedlove. Two paratypes, Mexico, Chiapas, 13 km N Berriozabel, 975 m, 29-V-1973, D. E. Breedlove.

The holotype is larger than the paratypes and has more finely punctate elytra, but is similar in all other features.

Isaminas reticuloides, NEW SPECIES

Frons and vertex impunctate; genae and epistomum with exceedingly fine, shallow punctures along rim. Pronotal disk with sparse, exceedingly fine, shallow punctures centrally, impunctate marginally; with extremely shallow, scarcely perceptible median longitudinal depression and distinct fovea just before posterior margin, two-thirds toward lateral margin. Anterior angles slightly obtuse, broadly rounded; lateral margins arcuate in anterior three fourths, then parallel to hind angles. Prosternal process with longitudinal depressions in lateral quarters, diverging posteriorly and declivous, producing trilobed apex. Elytra with strial puncture diameter one-half to one times length of dorsal eye lobe; smaller and subcontiguous in sutural stria, coarser and contiguous or sometimes coalesced in striae two to seven,

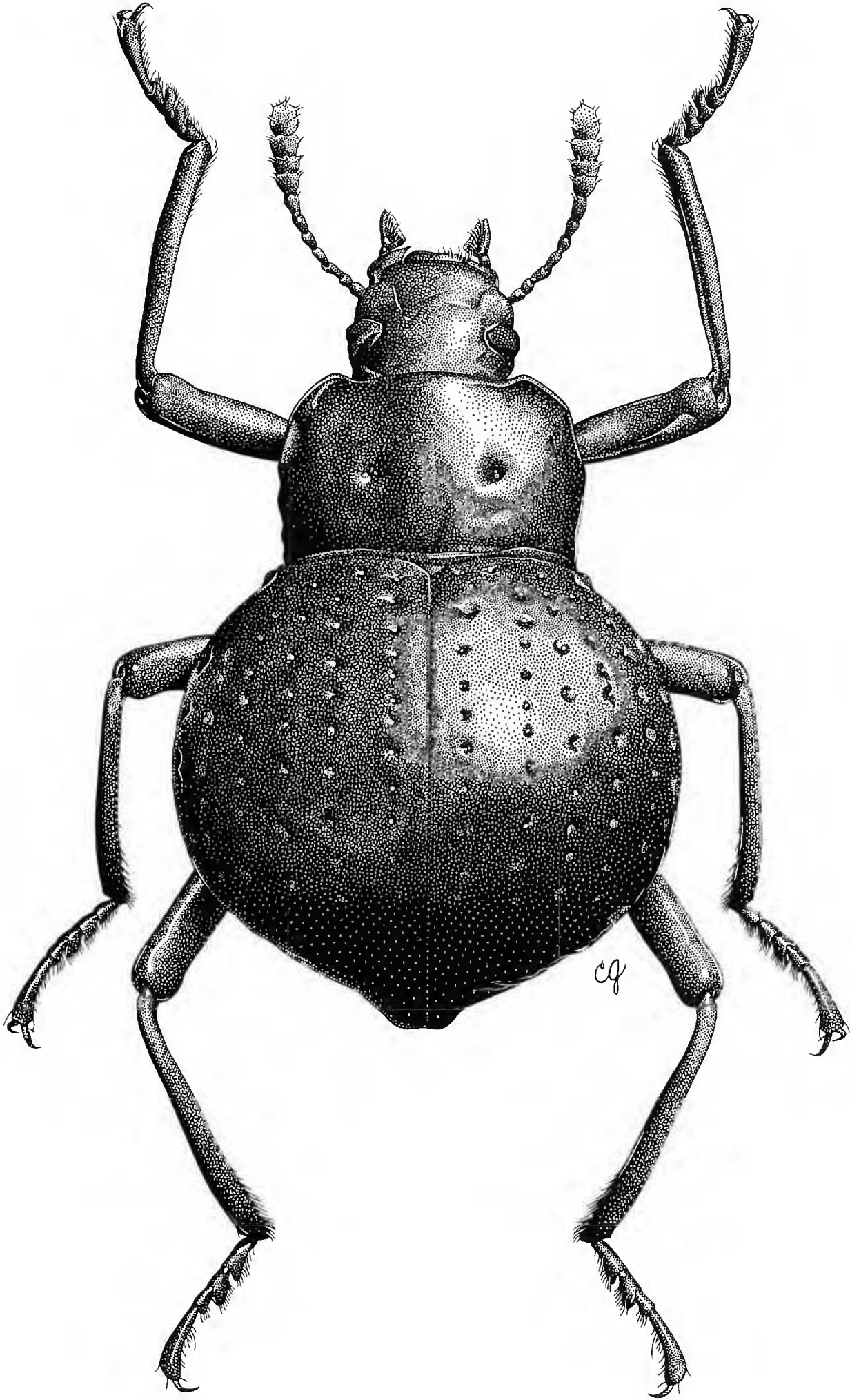


Figure 1. *Isaminas breedlovei*, new species, holotype.

finer in striae eight to nine and seldom coalesced; epipleural carina distinct to sternite five, continuing as rounded prominence to apex.

Measurements: PL, 2.7 mm; PW, 4.1 mm; EL, 7.3 mm; EW, 6.5 mm.

Isaminas reticuloides is similar to *breedlovei*, new species in its extremely inflated body and trilobed posternal process. See remarks under the latter species. The reticulate sculpturing of *reticuloides* is similar to that of *erotyloides* (Gebien), but in the latter punctures from adjacent series are coalesced, forming transverse depressions about one-third and two-thirds posteriad on the disk. In *reticuloides* punctures from adjacent series are never coalesced. In *erotyloides* the lateral pronotal margins are crenulate; in *reticuloides* there is no trace of crenulation.

Holotype (sex undetermined; California Academy of Sciences) from Mexico, Chiapas, north slope Cerro Bola, N. Cerro Tres Picos, 1524–2134 m. 5-V-1972. D. E. Breedlove.

Isaminas gibbipennis Champion

Isaminas gibbipennis Champion, 1886: 267.

Cranium punctate dorsally; punctures exceedingly fine posteriorly, becoming about one-half to one times eye facet in diameter, separated by one to several puncture diameters on epistomum and genae; punctures slightly denser along epistomal rim. Pronotal disk with exceedingly fine, shallow punctures centrally, becoming impunctate marginally; with distinct medial longitudinal depression and distinct fovea just behind middle at medial third on each side. Anterior angles broadly rounded; lateral margins arcuate in anterior half, then nearly straight, weakly crenulate to posterior angles. Prosternal process with longitudinal, shallow depressions along lateral quarters, these slightly divergent posteriorly but not deepened; apex only weakly trilobed, obtusely angulate. Elytral disk with strial punctures one-half to one times length of dorsal eye lobe in diameter, separated by about one-half to one times puncture diameter in each series; smallest anteriorly, on declivity and near epipleuron; distinctly elongated in rows seven to nine, especially anteriorly; epipleural carina complete to elytral apex.

Measurements (of paralectotype): PL, 7.4 mm; PW, 4.3 mm; EL, 6.8 mm; EW, 6.0 mm.

Isaminas gibbipennis is similar to *brevicollis* Champion in sculpturing and body configuration. In *gibbipennis* the epipleural carina is distinct to the elytral apex and the prosternal process has the apex obtusely angulate. In *brevicollis* the epipleural carina is present only as far posterad as the metacoxae and the prosternal process is acutely angulate.

A lectotype is hereby designated from the original series of cotypes in the British Museum (Natural History). Type locality, Nicaragua, Dept. Chontales. Additional paralectotypes are from Costa Rica (no further information). One paralectotype is located in the Essig Museum of Entomology, University of California, Berkeley.

Isaminas brevicollis Champion

Isaminas brevicollis Champion, 1886: 267

Cranium punctate dorsally, punctures about one-half to one times eye facet in diameter, separated by about one to two puncture diameters, becoming finer, denser along epistomal rim. Pronotal disk with punctures about one-fourth to one-half eye

facet in diameter centrally, becoming impunctate near margins; with distinct medial longitudinal depression and distinct fovea at middle at medial third on each side. Anterior angles broadly rounded; lateral margins arcuate except straight just before base. Prosternal process with shallow, longitudinal, parallel depressions along lateral quarters, becoming obsolete behind coxae; apex acutely angulate. Elytral disk with strial punctures about one-third to one times length of dorsal eye lobe in diameter, separated by about one to two puncture diameters in each series; smallest anteriorly, on declivity and near epipleuron; slightly elongate in rows seven to nine; epipleural carina distinct just behind humerus, becoming obsolete posteriorly, and disappearing at about metacoxa.

Measurements (specimen from Chiapas): PL, 2.5 mm; PW, 4.0 mm; EL, 6.7 mm; EW, 6.0 mm.

Isaminas brevicollis is similar in sculpturing and body shape to *I. gibbipennis* Champion, differing as described under the latter.

A lectotype is hereby designated from the original series of cotypes in the British Museum (Natural History). Type locality, Guatemala, Dept. Alta Vera Paz, Senahu. Additional paralectotypes are from Dept. Baja Verapaz, Sinanha. Additional record, Mexico, Chiapas, Tuxtla Gutierrez, 23-VI-1973, G. Ekis.

***Isaminas sullivanii*, NEW SPECIES**
(Fig. 2)

Frons and vertex with punctures about one-fourth to three-fourths times eye facet in diameter, separated by about one puncture diameter, becoming slightly smaller and denser along epistomal rim. Pronotal disk with fine, exceedingly shallow, almost obsolete punctures centrally, impunctate marginally; with distinct median longitudinal depression and distinct fovea at middle at median third on each side. Anterior angles broadly rounded; lateral margins strongly, evenly arcuate in anterior one-third, then nearly straight, slightly convergent and crenulate to posterior angles. Prosternal process with longitudinal depressions along lateral quarters, diverging slightly and becoming deeper posteriorly, producing trilobed apex. Elytra with strial puncture diameter about one-half to one times length of dorsal eye lobe, separated longitudinally by about one-fourth to one-half puncture diameter; punctures slightly smaller in sutural stria, anteriorly and on declivity; punctures in striae four through eight coalesced immediately behind humerus and in striae four through six on declivity, forming irregular transverse depressions, in life filled with bright yellow exudate; epipleural carina complete to elytral apex or nearly so.

Measurements: PL, 1.5–2.4 mm; PW, 2.9–4.5 mm; EL, 4.9–6.4 mm; EW, 4.4–7.2 mm.

Isaminas sullivanii is most similar to *erotyloides* (Gebien). In *sullivanii* the transverse elytral depressions are located immediately behind the humeri and the declivity. The elytral punctation is quite regular aside from the depressions. In *erotyloides* the depressions are located about one-third and two-thirds posteriad, and coalesced pairs or triplets of punctures are scattered irregularly over the elytra, especially laterally.

Holotype (sex undetermined; California Academy of Sciences) from Costa Rica, Cartago Prov. Turrialba, 14/19-V-1974, E. Giesbert. Paratypes: 3, same date as holotype; 1, Cartago Prov., C.A.T.I.E., 3 km SE Turrialba, 13/16-V-1985, J. Doyen; 5, same locality, 29/30-V-1985, J. Doyen; 1, same locality, 28-V-1985, C.

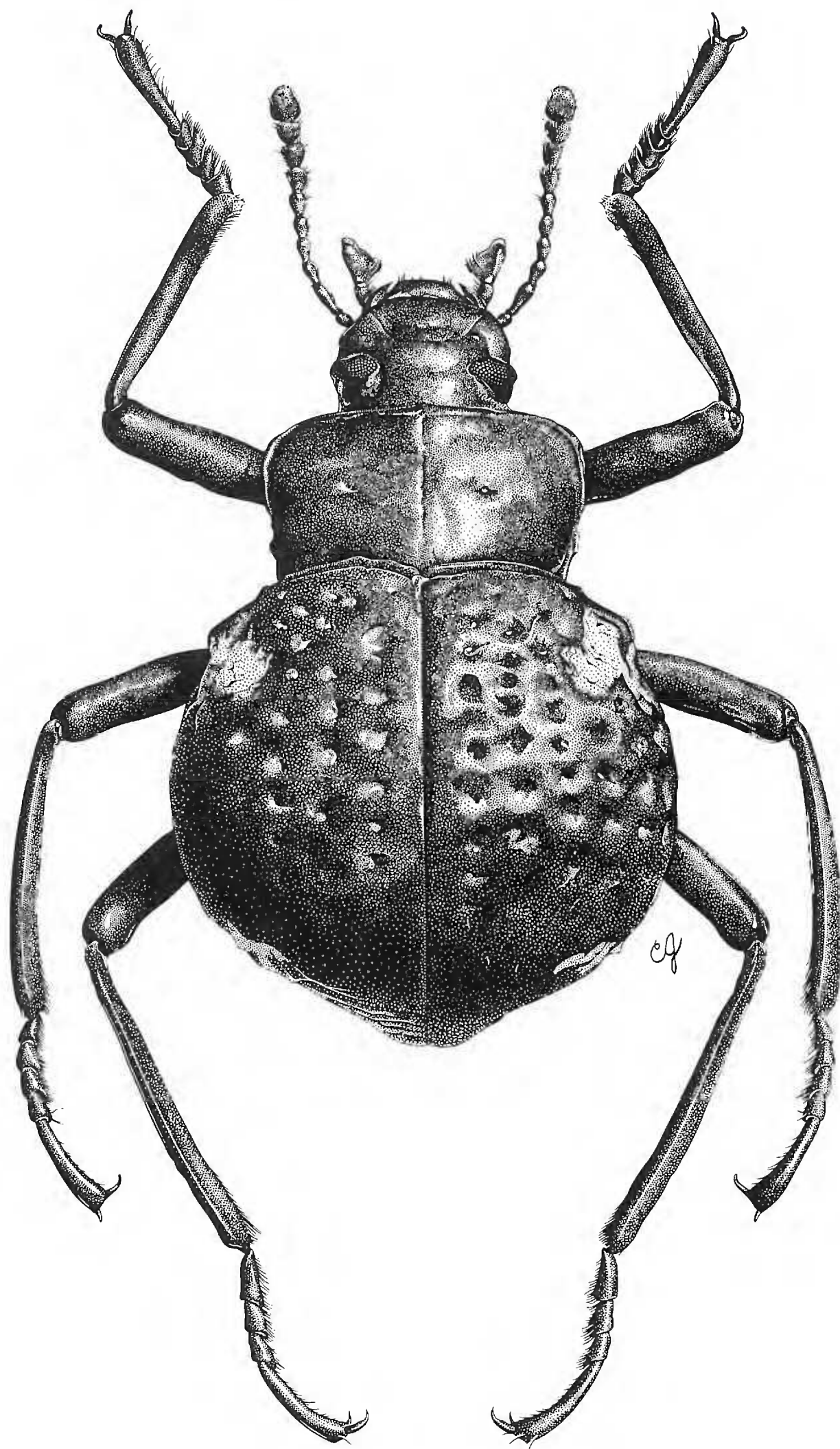


Figure 2. *Isaminas sullivanii*, new species.

Sevilla; 1, same locality, 8-I-1984, R. L. Penrose, F. T. Hovore, P. H. Sullivan; 9, Limon Prov., 22 km S. Siquirres, 9/12-I-1984, R. L. Penrose, F. T. Hovore, P. H. Sullivan.

At the C.A.T.I.E. facility near Turrialba most of the beetles were knocked onto beating sheets from tangles of dead vines in dense forest understory. They are active nocturnally, crawling slowly along vines and twigs.

Isaminas erotyloides (Gebien)

Pteroglymmius erotyloides Gebien, 1928: 224.

Frons and vertex with punctures about as large as eye facets, usually separated by less than one puncture diameter, densest near epistomal suture, becoming finer, sparser along epistomal rim. Pronotal disk with very shallow punctures about twice eye facet diameter medially, becoming impunctate in lateral quarters; with shallow longitudinal median depression, becoming foveate slightly before middle; distinct fovea slightly behind middle at median third on each side. Anterior angles broadly rounded; lateral margins evenly arcuate, crenulate, slightly depressed just inside carina, this depression filled with bright yellow exudate in life. Prosternal process with longitudinal depressions posteriorly convergent, meeting well before acutely angulate apex. Elytra with stria puncture diameter about one-half to slightly larger than length of dorsal eye lobe; punctures most regular in sutural stria, subcontiguous anteriorly, becoming contiguous or occasionally coalesced on declivity; punctures in striae two through nine subcontiguous to contiguous, occasionally coalesced into pairs or triplets; those in three through nine occasionally coalesced with punctures in adjacent striae, especially laterally and posteriorly, producing a coarsely rugose texture; adjacent punctures in striae two or three through eight always coalesced about one-third posterad and two-thirds posterad, forming irregular transverse depressions, in life filled with bright yellow exudate; epipleural carina complete to elytral apex or nearly so.

Measurements: PL, 2.5–2.9 mm; PW, 4.1–4.7 mm; EL, 6.8–7.8 mm; EW, 5.7–6.7 mm.

Isaminas erotyloides is similar to *sullivani* in bearing transverse, depressed regions on the elytra. It differs as described under the latter.

Holotype (sex undetermined; deposition not stated) from Honduras, Dept. Cortes, San Pedro Sala [sic], no additional data. Additional material examined: Honduras (no additional data) (7); Santa Barbara Departimiento, Lago Yojoa, 7/21-VII-1978, S. Dubon (2); La Paz Departimiento, La Paz, 21-VII-1978, B. Herrera (2); Comayagua Departimiento, Siguatepeque, 22-VI-1978 (1).

Saziches Champion

Saziches Champion, 1886: 261.

Type species: *Saziches subcaudatus* Champion, 1886, by monotypy.

Champion described the important external features of *Saziches*, relating it to *Isaminus*, *Oxidates* and the South American *Sphaerotus*. The last three are derived members of Coelometopini, as discussed above, but *Saziches* has distinctive ovipositor, internal female reproductive tract, and defensive glands which show that it is closely related to *Hegemona* Champion. In both these genera the ovipositor is

strongly modified as a stout, sclerotized, laterally compressed, blade-like structure (Fig. 3). Reduced gonostyles are visible apically, and faint transverse lines may correspond to divisions of the gonocoxite or between coxite and paraproct. In other regards the features of this ovipositor cannot be homologized with those of typical tenebrionids. Presumably the ovipositor is forced into some substrate, but oviposition and larvae are unknown.

The internal female reproductive tract consists of a slender vagina, opening into an enlarged bursa copulatrix, with a single diverticulum (spermathecal accessory gland) attached to the bursa. The gland is of nearly uniform diameter throughout, and glandular except at the extreme base. In *Saziches* the gland attaches dorsolaterally on the body of the bursa (Fig. 4). In *Hegemona* it attaches dorsolaterally on the neck, which is involuted (Fig. 5). The relatively thick walled bursa of *Hegemona* has numerous longitudinal pleats which maintain their shape, while that of *Saziches* is fragile and irregularly saccate when cleared.

The defensive reservoirs in both genera are large elongate sacs with distinct medial lobes basally. Oblique folds are apparent in the reservoir walls, especially in *Hegemona*, but the helical folds of derived Coelometopini are absent. There is considerable common volume between the reservoirs, which receive the secretion from a few basal collecting ducts.

Except for the highly derived ovipositor, most of these features are plesiomorphic. A bursa copulatrix is retained in many of the Old World coelometopines which are included in Cnodalonini in checklists, and also in *Mylaris* and *Taphrosoma* in the New World. In these taxa, however, the apex of the spermathecal accessory gland, though not enlarged, is nonglandular, whereas in *Hegemona* and *Saziches* it is glandular to the apex. Defensive glands similar to those of *Hegemona* and *Saziches* are found in *Camaria*, *Hapsida* and *Talanus* in the new world, and in many old world "Cnodalonini" (see Tschinkel and Doyen, 1980, Fig. 13). In *Catapiestus* and *Strongyliini* the reservoirs are non-annulate, but much smaller.

In external appearance *Hegemona* is extremely similar to *Promorphostenophanes* Kaszab (1960). The holotype of *P. atavus vietnamicus* Kaszab (1980) (BMNH) has the ovipositor visible. Without dissection it is apparent that it is modified in exactly the same manner as in *Hegemona* and *Saziches*. It seems certain that these taxa, and probably *Morphostenophanes* Pic form a natural clade.

In the Gebien catalog (1942–44) *Morphostenophanes* and *Saziches* are included under Misolampini (=Coelometopini, in part), while *Hegemona* appears under Helopini. None of the important features of the defensive glands or female tracts of any of these beetles suggest Helopini. In addition, all these genera have characteristic compound sensoriae on the apical antennal segments, while Helopini have only simple, hair-like sensilla. While cladistic placement is somewhat problematic, this clade appears to contain the most primitive members of the Coelometopine lineage, lacking defensive reservoir annulation, retaining a primary bursa copulatrix, and lacking the spermathecal specialization of the distal accessory gland. The ovipositor also lacks the reflexed paraprocts of nearly all members of the coelometopine lineage (oblique in *Menephilus*), but this may represent a secondary specialization, related to the blade-like structure of the coxites. *Talanus* has a superficially similar blade-like ovipositor, but the coxite structure differs in detail, and the reflexed paraproct is retained, indicating separate derivation. Subdivision of Coelometopini would be premature until a much greater proportion of the world

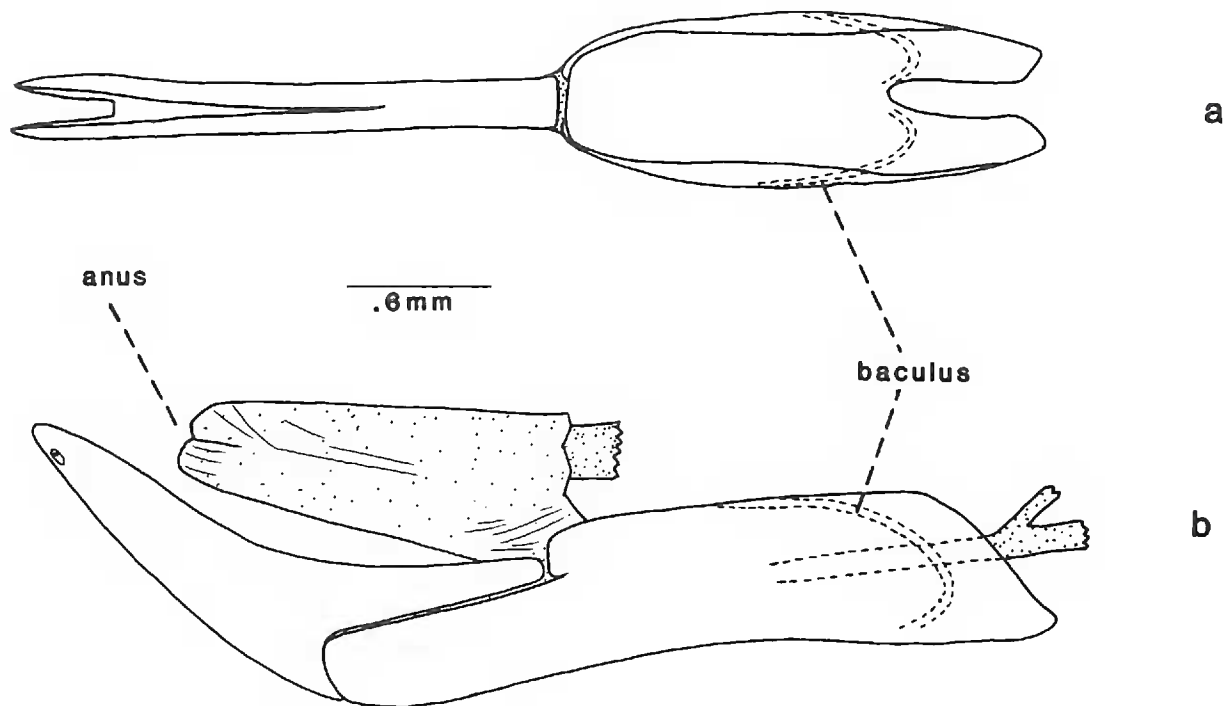


Figure 3. Ovipositor, *Saziches giesberti*.

fauna is examined in detail. At present it is prudent to recognize these genera as a distinctive clade within Coelometopini.

***Saziches subcaudatus* Champion**

Saziches subcaudatus Champion, 1886: 262.

Cranium with extremely shallow, almost obsolete punctures about one-fourth to one-half eye facet in diameter, separated by one to several puncture diameters, becoming slightly finer, denser on epistomal rim. Pronotal disk with sparse punctures much finer than eye facets. Elytra with strial punctures about one-fourth to one-half dorsal eye lobe in diameter, finer anteriorly, in sutural stria and on declivity, coarsest on humped part of disk; stria indicated by very fine line in sutural series, lines becoming gradually coarser laterally and obsolescent near apex; punctures in eighth stria connected by depressed furrow with incised line in bottom; interstriae two through nine subequal, flat; epipleural stria disappearing about halfway posteriad along sternite five; elytral apices forming small, rounded prominences.

Measurements (of paralectotype): PL, 2.4 mm; PW, 3.6 mm; EL, 8.0 mm; EW, 5.9 mm.

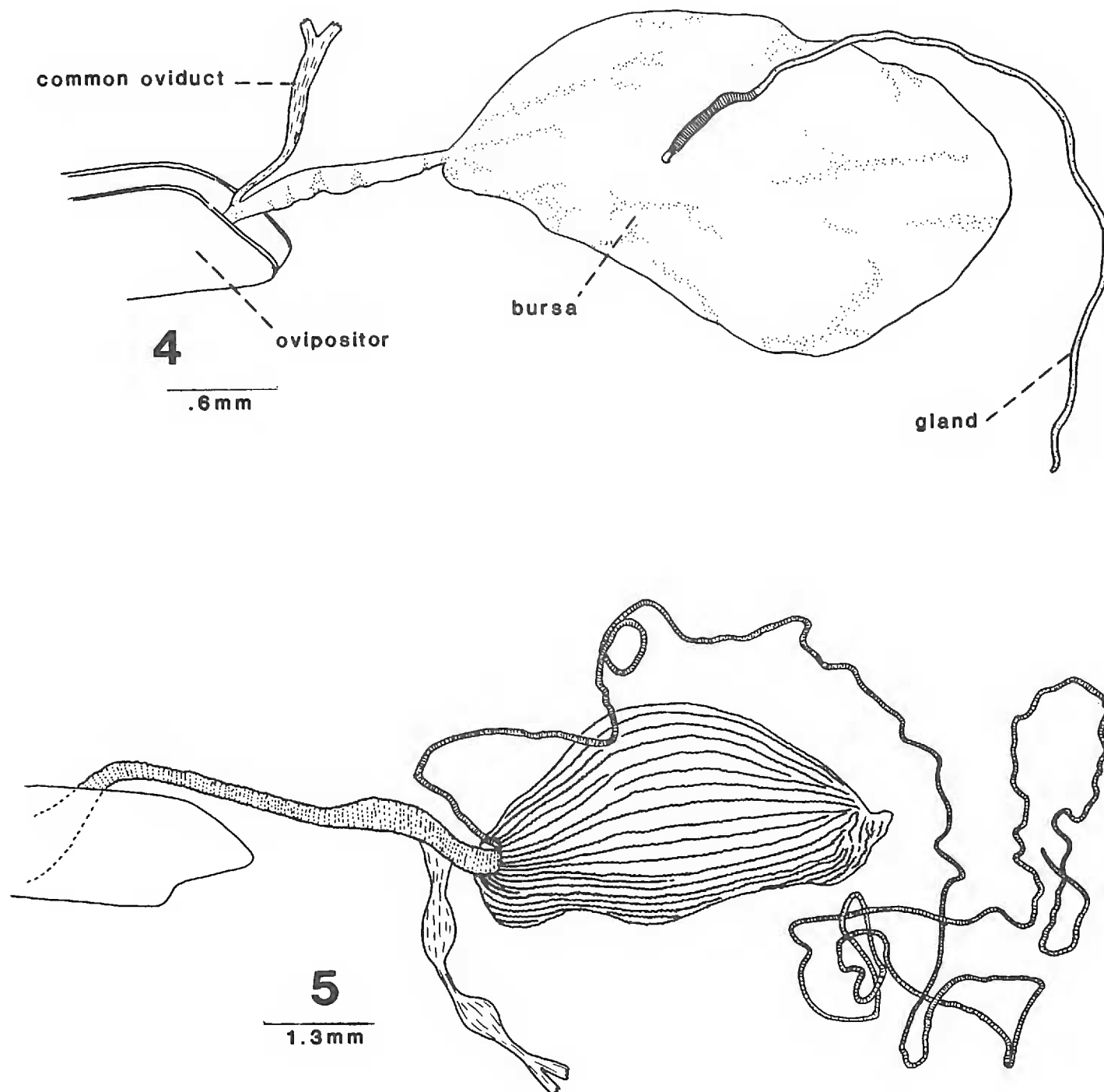
Saziches subcaudatus differs from *S. giesberti* as described under the latter.

A lectotype is hereby designated from the original series of cotypes in the British Museum (Natural History). Type locality: Guatemala, Dept. Alta Vera Paz, San Juan. Additional paralectotypes are from Dept. Alta Vera Paz, Senahu. One paralectotype is located in the Essig Museum of Entomology, University of California, Berkeley.

***Saziches giesberti*, NEW SPECIES**

(Fig. 6)

Cranium with shallow, setigerous punctures about one-fourth to one-half eye facet in diameter, separated by one to several puncture diameters, becoming coarser,



Figures 4–5. Internal female reproductive tracts. 4. *Saziches giesberti*. 5. *Hegemona filibuster* Champion.

denser on epistomum, then finer on epistomal rim. Pronotal disk with very shallow setigerous punctures about one to two times eye facet in diameter, separated by one to several puncture diameters. Elytra with striae indicated by finely incised lines; punctures minute, scarcely demarked from strial lines; striae one and two meeting anteriorly; striae one and nine, three and four fusing posteriorly; remainder fusing irregularly; interstriae convex, shining; first interstria narrowest, subparallel, with scattered, irregular depressions; second interstria widest, about 2.5 times as broad in middle as on declivity, and bearing scattered, irregular punctures and depressions; interstriae three through nine subequal, slightly broader in middle and traversed by five or six transverse depressions, producing undulating surface; irregular depressions just behind humeri and on declivity with dull surface, in life containing yellow-orange exudate; epipleural stria continuing almost to elytral apex; elytral apices not produced.

Measurements: PL, 1.8–2.1 mm; PW, 2.7–3.5 mm; EL, 5.9–7.3 mm; EW, 4.4–5.9 mm.

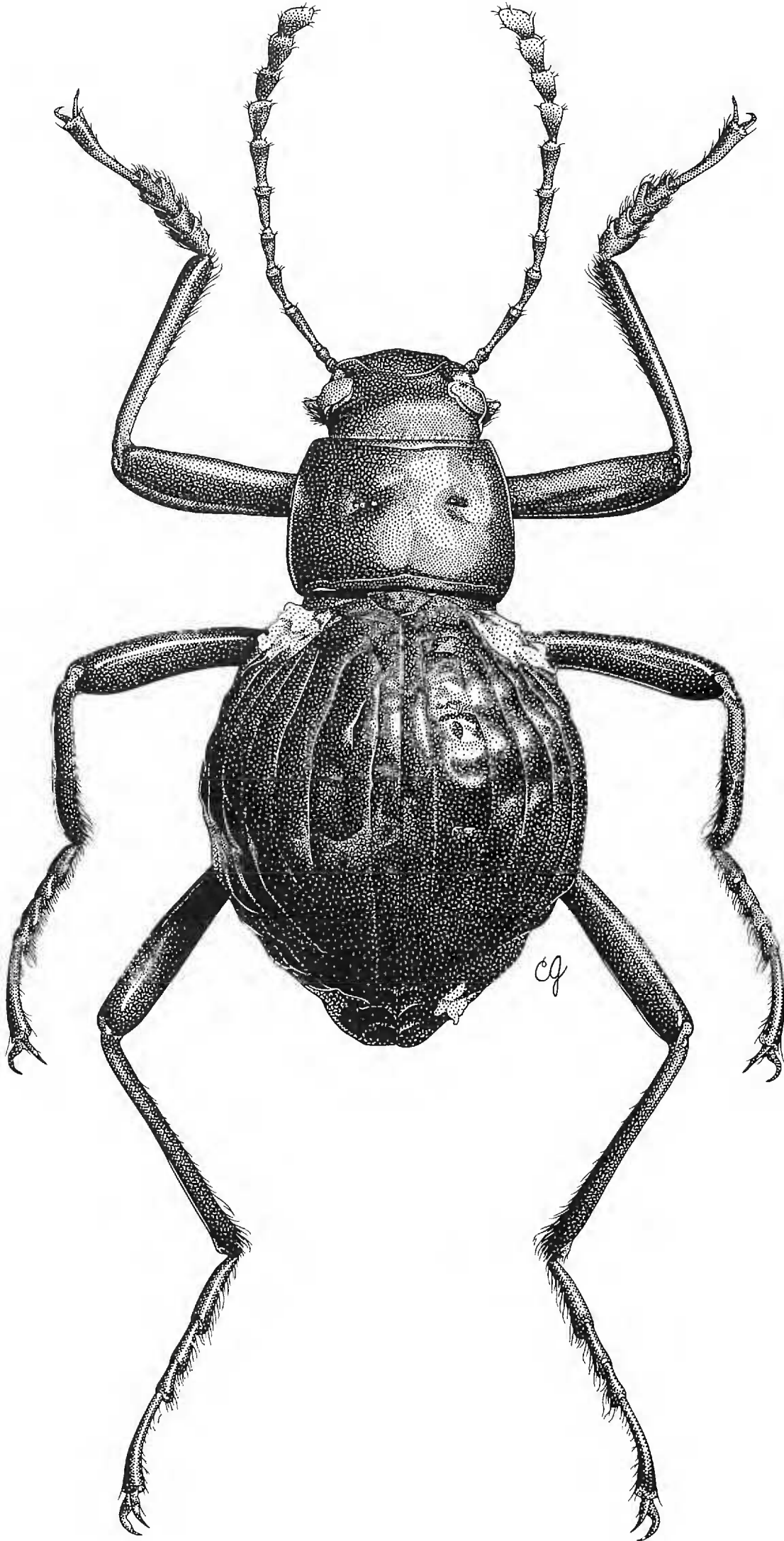


Figure 6. *Saziches giesberti*, new species, holotype.

Saziches giesberti differs from *subcaudatus* Champion in its extremely fine elytral punctures, the impressed striae lines, and the subhumeral and declival depressions. In *subcaudatus* the striae punctures are very coarse, the striae lines barely defined except laterally, and the subhumeral and declival depressions absent.

Holotype (California Academy of Sciences) from Costa Rica, Cartago Prov. Turrialba, 14/17-V-1974. E. Giesbert. Paratypes, Turrialba, 31-V-1951, O. L. Cartwright (2); CATIE, 3 km SE Turrialba, 600 m, 13/16-V-1985, J. T. Doyen (3).

At the C.A.T.I.E. facility *Saziches giesberti* was collected onto beating sheets from tangles of dead vines in dense forest understory. The beetles were taken in company with *Isaminas sullivani*, which they resemble in bearing patches of yellow exudate subhumeraly and on the elytral declivity. Adults are probably active nocturnally.

Cnephalura, NEW GENUS

Epistomum nearly straight medially, shallowly emarginate at lateral epistomal sutures; epistomal suture obsolete medially, faint laterally; epistomal membrane concealed. Eyes shallowly emarginated by epistomal canthus; dorsal lobe slightly larger than ventral, bordered medially by shallow groove, deepening and extending posteroventrally to mid-lateral postgena, delimiting distinct postocular lobe; eye bounded posteriorly by shallow groove. Antenna with third segment about twice length of fourth; segments four through eight becoming gradually shorter, broader; segments nine through 11 forming weak club and bearing compound sensoriae apically. Mentum trapezoidal, anterior central portion forming elevated tuberosity.

Pronotum subquadrate, moderately convex; lateral carina complete, very narrowly upturned; prosternal process about as wide as procoxa, declivous behind coxae, apex broadly rounded. Elytra moderately convex, evenly ovate; epipleuron narrowing very little from humeral to elytral apex; scutellum about twice as broad as long. Mesosternal fossa obtusely concave, lateral margins scarcely elevated; metasternum between coxae almost as long as mesocoxal diameter; intercoxal process three-fourths as wide as metacoxa, truncate. Femora and tibiae nearly cylindrical; femora reaching slightly beyond head and approximately to abdominal apex; tibiae with apices pilose; tarsi with plantar surfaces of all but apical segment pilose. Abdominal defensive reservoirs large, saccate, with annular foldings and considerable common volume; aedeagus inverted, simple, fusiform; median lobe sessile. Female reproductive tract unknown.

Cnephalura is similar to *Oxidates* in body form. In *Cnephalura* the epistomal suture is obsolete to absent, at least medially, whereas in *Oxidates* it is distinct. In *Cnephalura* the supraocular groove extends posteroventrally behind the eye, delimiting a distinct postocular lobe. In *Oxidates* the supraocular groove is restricted to the dorsolateral margin of the eye. In addition, the male of *Cnephalura umbrata* has a sharp tooth three-fourths of the distance toward the apex of the femur (see below). This secondary sexual feature is unknown in *Oxidates*.

Type species: *Cnephalura umbrata*, new species, here designated.

Cnephalura umbrata, NEW SPECIES

(Fig. 7)

Male.—Cranium with deep, setigerous punctures about one to two times eye facet in diameter, separated by about one puncture diameter, becoming shallower and

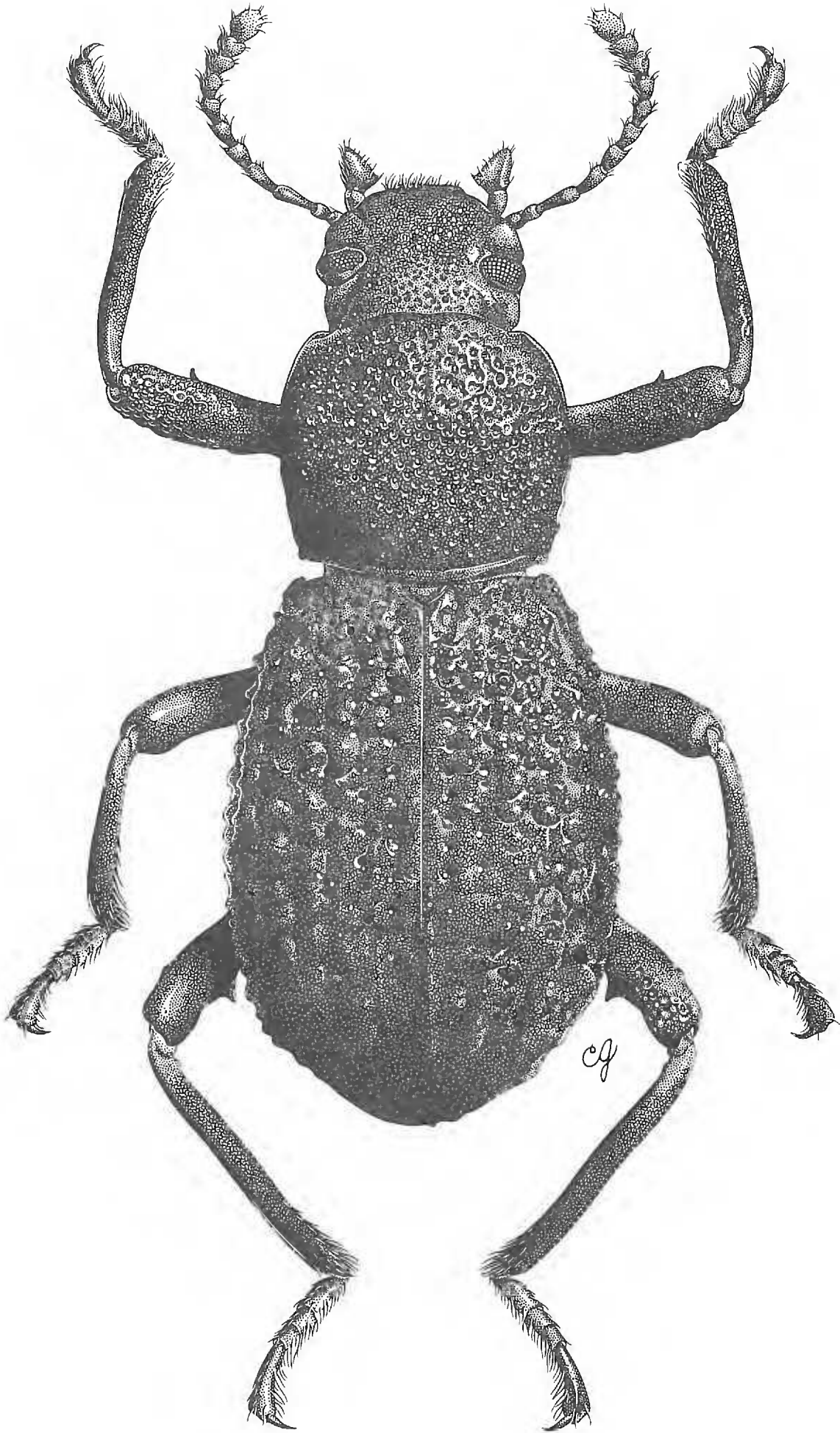


Figure 7. *Cnephalura umbrata*, new species, holotype.

finer on epistomal margin; setae pale, procumbent. Pronotal disk with deep, setigerous punctures about twice eye facet in diameter, contiguous to separated by about one puncture diameter, forming irregularly rugosopunctate surface; setae recumbent. Anterior angles obtusely rounded; lateral margins nearly evenly

arcuate; posterior angles right angled; posterior border weakly bisinuous; hypomeron sculpted as disk; prosternum scabrous; prosternal process with marginal groove along lateral borders. Elytra with regular series of striae punctures about 1.5 times diameter of eye facet, separated by about two puncture diameters on disk, decreasing to one diameter on declivity; interstriae irregularly set with rounded shining tuberosities one to three times punctures in diameter, each bearing several minute setae and one to several very fine punctures. Abdominal sternites with punctures a little larger than eye facets, separated by about one to two puncture diameters, becoming denser, finer on apex of sternite five. Legs rugosely punctate; femora bearing sharp, short tooth at about distal three-fourths.

Measurements: PL, 2.5–2.7 mm; PW, 2.8–3.0 mm; EL, 5.7–5.8 mm; EW, 3.9–4.0 mm.

Female.—Unknown.

Holotype male (California Academy of Sciences) from Mexico, Chiapas, Municipio la Trinitaria, Dos Lagos, 14 km E paved road at Lagos de Colores, 1219M, 29-XI-1976. D. E. and J. A. Breedlove. Paratype, Chiapas, Municipio de Cintalapa, 4–6 km NW La Cienega, 40 km NW Las Cruces, 1400 m, XII-1-1980. D. E. and J. A. Breedlove.

The combination of coarsely punctate pronotum and head with coarsely, densely tuberculate elytra distinguishes *Cnephalaria umbrata* from all other Central American Coelometopini.

Bothynocephalus, NEW GENUS

Epistomum straight just before eyes, then evenly arcuate between antennal sockets; lateral epistomal sutures faint, median suture absent; epistomal membrane concealed. Eye with dorsal and ventral lobes subequal, shallowly emarginated by epistomal canthus; dorsal lobe bordered anteriorly and medially by a shallow groove terminating posteriorly in a deep cavity adjacent to the posterodorsal corner of the eye (Fig. 8); eye bordered posteriorly by shallow groove. Frons forming prominent, abruptly declivous, curving brow between postocular cavities. Antenna with third segment about 1.7 times longer than fourth; segments five through 10 becoming gradually shorter, broader; 11 almost twice as long as broad, asymmetrically rounded apically; compound sensoriae distributed on mesal and lateral angles of segments eight through 10, on apical half of 11. Mentum trapezoidal; central third forming prominent, elevated tuberosity.

Pronotum globular, lateral carina obsolescent in posterior third, anterior border not margined; posterior border broadly margined, deeply grooved just before margin; prosternal process slightly wider than coxa, abruptly declivous immediately behind coxae. Elytra strongly convex, evenly ovate; epipleural margin ventrolateral in aspect; scutellum triangular, moderate in size, about twice as broad as long. Mesosternal fossa very shallow, lateral margins scarcely elevated; metasternum between coxae about as long as mesocoxa; intercoxal process nearly as broad as coxa, truncate with broadly rounded corners. Femora and tibiae subcylindrical; femora reaching slightly beyond head and to fourth abdominal sternite; tibiae with apex pilose; tarsi with plantar surfaces of all but apical segment pilose, apical segment more sparsely setose. Abdominal defensive reservoirs large, saccate, with annular foldings and considerable common volume; collecting ducts emptying through single large ampulla on each reservoir. Ovipositor coelometopoid, with

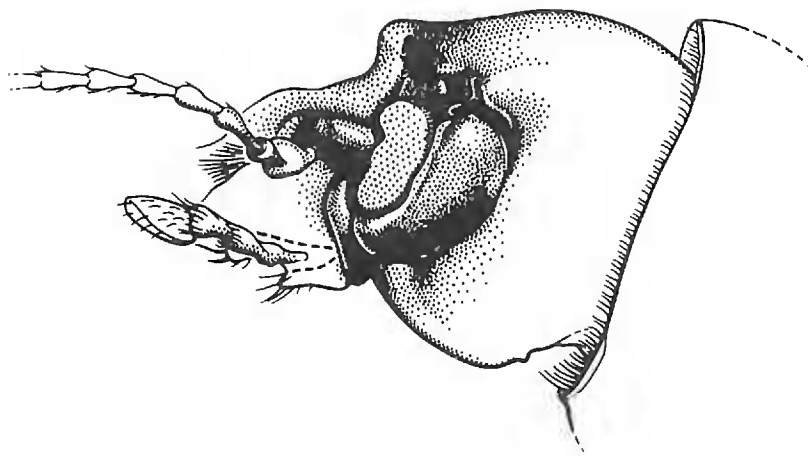


Figure 8. *Bothynocephalus*, cranium, lateral aspect.

paraprocts rotated, basal lobe of coxite extremely elongate; internal tract without bursa copulatrix; spermathecal accessory gland about as long as ovipositor, terminating in large, saccate spermatheca. Male reproductive tract unknown.

Bothynocephalus is similar to *Oxidates* and *Cnephalura* in body form, but has a relatively smaller, more globular pronotum, and a greater constriction between the prothorax and the hindbody, which superficially gives it the appearance of members of the tenebrionid tribe Triorophini. In the characteristics of its defensive glands, ovipositor and internal female reproductive tract, *Bothynocephalus* is a typical, highly derived member of the Coelometopini.

Type species: *Bothynocephalus cristatus*, new species, here designated.

***Bothynocephalus cristatus*, NEW SPECIES**

(Fig. 9)

Female.—Cranium with very fine, minutely setigerous punctures, very much smaller than eye facet diameter, separated by about two to five puncture diameters; cranial surface very finely shagreened, except for polished declivity below brow ridge. Pronotal disk with anteromedial punctation as on cranium; punctures becoming slightly coarser, shallower in anterolateral corners, gradually coarser posteriorly to slightly larger than eye facets along posterior margin; large punctures more or less coalesced along lateral carina, forming irregular marginal groove; carina rounded anteriorly, weakly explanate and upturned near middle, becoming obsolescent posteriorly; anterior corners broadly rounded, without definite angles; lateral margins strongly arcuate; posterior angles obtuse; posterior margin evenly arcuate. Hypomeron with shallow punctures about 1.5 times eye facet in diameter, separated by about one to three puncture diameters. Prosternal process with deep marginal groove along lateral and posterior borders. Elytra with regular series of deep stria punctures about 1.5 to two times eye facet in diameter, separated by about one to three puncture diameters; sutural stria of one or two punctures; striae one and nine, two and seven, three and six, four and five joining posteriorly; one and two, five and six joining anteriorly. Interstriae weakly sulcate, finely shagreened. Epipleuron obsolete anteriorly, becoming visible as fine ridge at about anterior margin of fifth sternite and extending almost to elytral apex. Abdominal sternites finely shagreened, with fine, obsolescent punctures barely visible on last three sternites.

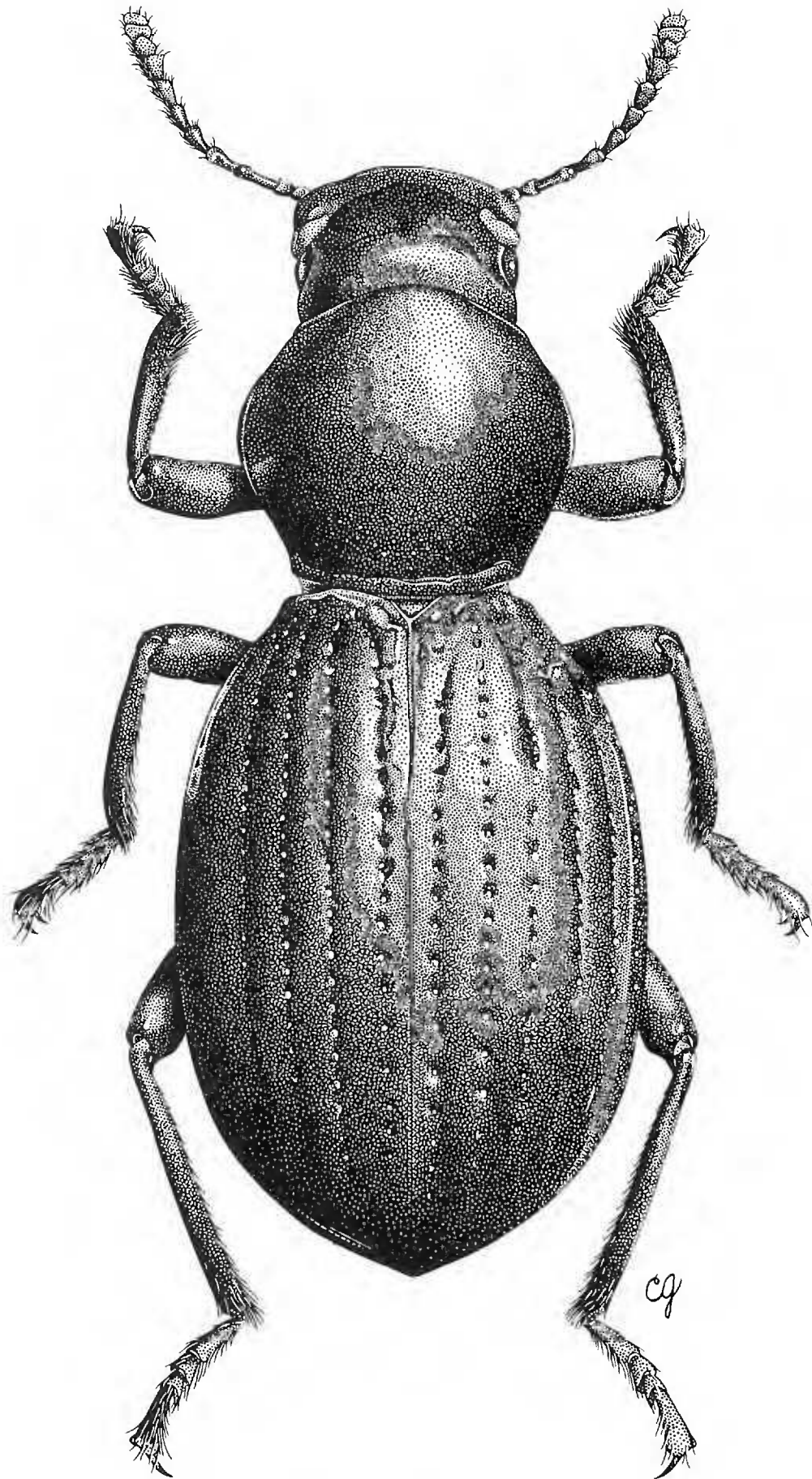


Figure 9. *Bothynocephalus cristatus*, new species, holotype.

Femora with punctures about one-half to one times as large as eye facets, separated by about one puncture diameter to subcontiguous. Tibiae more finely punctate.

Measurements: PL, 2.6–3.3 mm; PW, 3.0–3.6 mm; EW, 4.2–5.2 mm; EL, 6.5–8.2 mm.

Male.—Unknown.

Holotype female (California Academy of Sciences) from Honduras, Comayagua Departimiento, Siguatepeque, 8-VI-1976. J. V. Mankins. Paratype (abdomen missing, probably female), same locality 26-X-1975. J. V. Mankins.

Bothynocephalus cristatus differs from all other new world Tenebrionidae in its prominently browed frons and deep postocular cavities.

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